



## Consumer attitudes, motivations and barriers towards sheep and goat dairy products

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### ABSTRACT

Sheep and goat dairy products are part of the culinary tradition of most European countries. The paper explores consumers' perceptions and attitudes towards sheep and goat dairy products within seven European countries. A combination of focus group discussions and laddering interviews were used. Results showed that most consumers perceived those products as a speciality food with a unique taste that can be perceived as good or bad. Perceived quality, naturalness and healthiness are the dominant motivational structures, while value-for-money is a secondary concern. More focus on communicating the hedonic dimension and positive health-related messages may increase consumers' interest and acceptance.

### 1. Introduction

The small-ruminant extensive production system contributes to the sustainable use of agricultural lands unsuitable for crop production or other livestock, preserving local populations' traditions and cultural heritage (Boyazoglu and Morand-Fehr, 2001; Di Gregorio et al., 2023; Durmuş et al., 2019). In Europe, sheep and goat dairy products are commonly consumed, with some differences among countries. More specifically, in France, Greece, Italy, Spain and Turkey, the consumption of small ruminant dairy products is much higher compared to countries such as Finland and the UK with a strong propensity for cow dairy products (De Devitiis et al., 2023; Güney, 2019; Pirisi et al., 2007; Vargas-Bello-Pérez et al., 2022). Most sheep and goat dairy products are labelled in the European Union with geographical indications such as Protected Denomination of Origin (PDO) and/or Protected Geographical

Indication (PGI), which carries several values highly significant to consumers such as high quality, healthiness, artisanal and local production, good taste, and sustainability (Boyazoglu and Morand-Fehr, 2001; Di Gregorio et al., 2023; Park et al., 2007; Sgroi and Modica, 2022).

Despite consumers' positive perception, the sector has always experienced economic and structural difficulties (Rossi, 2017). The global production of small ruminant milk represents only about 3.5% of the total milk produced in the world (respectively 2,22% goat milk and 1,26% sheep milk) (FAO, 2020), and the overall consumption of sheep and goat dairy products is relatively low compared to cow products (Lahne et al., 2014).

In contrast to the vast literature on cow dairy products, there is a limited range of works on sheep and goat dairy products (Almli et al., 2011; Bimbo et al., 2017; Boyazoglu and Morand-Fehr, 2001; Cruz

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Maceín et al., 2020; Di Gregorio et al., 2023; Hocquette et al., 2013; Kupiec and Revell, 1998; Lahne et al., 2014; Miller and Lu, 2019; Nacef et al., 2019; Pandya and Ghodke, 2007; Pulina et al., 2018; Ribeiro and Ribeiro, 2010; Ryffel et al., 2008; Vargas-Bello-Pérez et al., 2022). Among the studies that explored consumer perception and acceptance, sheep and goat dairy products are appreciated for their higher nutritional value and the natural and traditional characteristics of the production systems (Pandya and Ghodke, 2007; Ryffel et al., 2008; Vannoppen et al., 2001; Vargas-Bello-Pérez et al., 2022). For consumers, sheep and goat dairy products have a special and unique flavour, which represents a very important reason for consumption (Miller and Lu, 2019; Ribeiro and Ribeiro, 2010; Ryffel et al., 2008; Vargas-Bello-Pérez et al., 2022). However, the “goaty” or “sheepy” taste, which characterises the wide variety of those dairy products, still represents a problem for the increase in consumption (Ryffel et al., 2008). Ribeiro and Ribeiro (2010) described how, for many years, the bad reputation of “goat-like” taste was related to the fact that it was impossible to find someone who wanted to try goat dairy products. Besides, most consumers prefer cow dairy products for their more “neutral” taste. The low familiarity with sheep and goat dairy products contributes to keeping low their consumption level (Hocquette et al., 2013; Lahne et al., 2014; Vargas-Bello-Pérez et al., 2022). A recent study reported that the lack of knowledge about these dairy products is a relevant reason for non-consumption (Vargas-Bello-Pérez et al., 2022). Lastly, another reason behind non-consumption is the limited market availability of sheep and goat dairy products (Vargas-Bello-Pérez et al., 2022).

The present study aims to determine the most relevant motivations and barriers towards consuming sheep and goat dairy products. Due to the exploratory nature of our research, the investigation combined two qualitative approaches: focus groups and means-end chain theory. Focus group (FG) discussions (McQuarrie and Krueger, 1989) were used to discover preferences, beliefs, shopping habits and attitudes from the consumers' viewpoint. Then, consumers' motivations and barriers to consumption of sheep and goat dairy products were further investigated using the means-end chain (MEC) approach, which links explicitly product attributes to consumer-relevant consequences and end states (Reynolds and Gutman, 1988).

## 2. Materials and methods

### 2.1. Focus group

Fifteen in-person focus groups were conducted in seven countries (Finland, France, Greece, Italy, Spain, Turkey and the UK). The 145 participants, all responsible for household food shopping and all sheep or goat dairy product consumers, were mostly recruited outside supermarkets and small shops and through snowballing in each country. In Spain, a professional recruiting company was involved and in Italy, participants were also recruited using existing datasets. Each focus group included both women and men (male/female, 30%–60%). All participants were between 25 and 65 years old and occasional/regular dairy products consumers in a proportion varying between 30% and

60%. Table 1 shows the main characteristics of participants by country. Focus group discussions were conducted following standard and agreed guidelines. A training workshop was also conducted to pre-test the discussion guidelines in the different countries. The moderator's guide included four sections: 1) an introduction to define the purpose of the study and to introduce participants; 2) the laddering pencil-and-paper questionnaire; 3) a section with some probing questions to explore preferences, awareness, beliefs and shopping habits towards sheep and goat dairy products and possible strategies to increase their consumption; and, 4) a discussion on feasible innovations in sheep and goat dairy sector. Each session was audio or video-recorded. The duration of the focus groups varied from 1 h and a half to 2 h. Refreshments were also served, and, in some cases, a monetary incentive was given to participants.

### 2.2. Means-end chain model and laddering technique

The Means-end chain (MEC) paradigm focuses on consumer goal structures by presuming a “hierarchy” of goal levels at which a product's concrete attributes might be interpreted and preferred by consumers (Huffman et al., 2000). MEC allows discovering how perceived self-relevant product attributes lead to consumers' desired consequences and values, which are the “end-states” that influence everyday consumer choice (Reynolds and Gutman, 1988).

Data are usually collected using an interview technique called “laddering” (Leppard et al., 2004; Pieters et al., 1995). Laddering interviews are characterized as either face-to-face or pare-and-pencil semi-structured qualitative interviews, that allow to build the links between attributes, consequences, and values.

According to Reynolds and Gutman (1988) three steps are necessary to shape relevant means-end chains about a topic: 1) elicitation, in which consumers are asked to provide product attributes; 2) definition of single means-end ladders using an iterative question “Why is this important to you?”; 3) coding and analysis of consumers' replies to create the implication matrix. The Implication Matrix – a square matrix that reports the frequency of the connections between single categories of attributes, consequences and values – is used to build a Hierarchical Value Map (HVM), a graphical representation of the relevant associations within each level of abstraction (Lind, 2007). The consumer's involvement can be measured by the number of chains respondents elicit: a high involvement produces complex and long chains. In contrast, a low involvement generates simple and less interconnected chains (Gengler et al., 1995).

For this study, “hard” laddering (e.g., using questionnaires instead of in-depth personal interviews) was preferred for data collection because it provides a structured form of elicitation and allows higher standardisation given the cross-cultural nature of the study and the difficulty of finding well-trained interviewers in each country (Botschen et al., 1999; Leppard et al., 2004).

Two laddering questionnaires were developed: one to investigate motivations for consumption of sheep and goat dairy products and one to investigate barriers to consumption. The structure of the hard

**Table 1**  
Focus group composition by country (only for consumers).

Attribute	Detail	ES	FI	FR	GR	IT	TR <sup>a</sup>	UK	Total
Sex	Women	10	13	12	8	10	15	11	79
	Men	8	6	12	13	7	13	7	66
Age (years)	25–45	14	11	24	19	11	19	10	108
	46–65	4	8	0	2	6	9	8	37
Working	Yes	10	9	12	11	13	21	16	92
	No	8	10	12	10	4	7	2	53
Consumer Type	Regular	8	7	12	11	11	17	10	76
	Occasional	10	12	12	10	6	11	8	69
<b>Total</b>		18	19	24	21	17	28	18	145

<sup>a</sup> 3 focus groups were conducted in Turkey, instead of two as in the other countries.

laddering questionnaire was composed of three sections. The first one was to determine the desirable characteristics that consumers consider important in selecting and buying their preferred type of sheep or goat dairy product. For the non-consumers, instead, it was asked to focus on the most undesirable characteristics that prevent them from purchasing. The second step was also different for consumers and non-consumers. Consumers were asked to select the three most desirable characteristics and non-consumers undesirable. Both were then asked to explain each characteristic's meaning. The third step consisted of generating the ladders starting from the most desirable or undesirable characteristics. Participants were asked to write 'Why the characteristic is important to you?' in the typical iterative way, to build their own sequences of attribute–consequence–value chains.

In the end, 227 completed laddering questionnaires were collected: 141 with current consumers (the same participants of the focus group sessions) to explore motivations and 86 with non-consumers to explore barriers. Non-consumers only completed only the laddering questionnaire and did not participate in any focus group. In each country, the laddering questionnaires to investigate the barriers were completed by 12 non-consumers using socio-demographic recruitment quotas similar to those of the sheep and goat dairy consumers. The non-consumer sample included females (62%) and males (38%), with a mean age of 41 years old, and workers (72%).

Laddering questionnaires were translated into each country's language to collect data, and then each relevant ladder was translated in English. Two researchers independently performed the coding of ladders using a common coding scheme. The answers were categorised into attributes, consequences, and values, and those with the same meaning were grouped into the same category. Inter-coder reliability (Krippendorff, 2004) was assessed as a percentage of the agreement achieved among coders regarding the assignment of concepts to categories (codes). Disagreements were then resolved to achieve 100 percent agreement.

Then, the ladders were entered into the Mecalyst cloud 2.0 software (2016). The same software, which provides an interactive system to manage the ladders and relevant codes, was used for the analysis of the Implication Matrix and for the generation of the HVM.

### 3. Results

Focus group results entail in-depth discourses on consumers' preferences and attitudes, shopping habits, and strategies to increase consumption, and are presented first. The means-end chain results conclude the section.

#### 3.1. Focus groups

Focus group results were analysed at the country level. A codebook was prepared centrally by the research leaders and then complemented with extra country-level codes that could merge. The results reported here represent a meta-analysis of country reports. To preserve anonymity and privacy, any reference to the participants will contain the country code, the "Gender" code (e.g., "M" for male; "F" for female), and the short form "Reg" when referred to regular consumers; and "Occ" when referring to occasional consumers. Where necessary, for non-consumer chunks, only country code and gender were reported.

##### 3.1.1. Preferences

Participants mentioned different types of sheep and goat dairy products according to their country of origin. The discussion mostly focused on cheese products (e.g., Pecorino Romano cheese, Feta cheese, Halloumi etc.). For consumers, sheep and goat cheeses are versatile and can be consumed as a main dish. Other dairy products like yoghurt and milk are less consumed than cheese, and only a few respondents (less than 10) said they consumed goat milk, while all participants stated they had never tried ewe milk.

Consumers perceive sheep and goat dairy products as "more natural" and "less industrialised" compared to cow dairy products; one participant stated: "It is a natural product ... Goats are free to walk outside; they are not 'mass produced' as cows are. This is why the cheese tastes so nice" (UK, F, Reg). For consumers, the "free-range" production system, typically associated with small ruminants in their minds, increases the quality perception of the product.

Sheep and goat dairy products are also considered "healthier" compared to other milk products (mainly from cows). Many participants mentioned their perceived higher digestibility.

The uniqueness of the taste is the other relevant reason for their consumption. Participants declared: "The taste of pecorino cheese is unique" (IT, F, Occ). However, the typical "strong" taste and smell of sheep and goat dairy products emerged during the discussions, and some participants associated it with negative experiences and perceptions and as relevant barriers to purchasing and consuming these products. Some participants (from Spain, Turkey and Italy) declared they purchase very low quantities of sheep goat dairy products because other family members don't like their strong taste and/or odour; one participant stated: *My daughter does not like goat cheese because of its strong smell* (TR, M, Reg). According to those consumers, even if cow's dairy products are considered "less natural and healthy", they are preferred because of their "neutral" sensory characteristics – preferred by the youngest – and, ultimately, for not wasting food and money on products that are of limited consumption at home.

Among non-sensory aspects, a group of consumers (mainly in Spain and the UK) mentioned a limited knowledge (i.e., in terms of variety) and familiarity with sheep and goat dairy products. Most consumers have very little information on the nutritional content of these dairy products. In the participants' experience, cow dairy products are more familiar, advertised, and common on supermarket shelves than sheep and goat dairy products. Some participants associate these products with occasional purchases at farmers' markets or farm shops (see the following subsection). Also, some consumers believe sheep or goat cheeses have a higher fat content than other dairy products (e.g., those from cow milk), and for this reason, they limit their purchase.

Price was also mentioned as another obstacle to purchasing these products. According to consumers, reducing the price could positively impact purchases, increasing the economy and competitiveness of the whole sector. Nevertheless, price still represents an important quality indicator for consumers; one claimed: "When the price is quite low for a Pecorino cheese, I think that the product is not authentic (i.e., made of ewe milk) or the taste is not good" (GR, M, Reg).

##### 3.1.2. Shopping habits

The majority sees the consumption of sheep and goat cheese as a speciality good, suitable for special occasions and not for daily consumption. However, in some countries (e.g., Spain, Turkey and Greece) where the consumption of sheep or goat cheeses is more grounded in national dietary culture, the consumption is almost daily.

Generally, participants preferred local products directly purchased from local farmers and processors they trust. Local farmers and processors are preferred because of their products' perceived higher quality, genuineness and healthiness and lower prices than specialised food shops or small groceries. One declared: "I always buy a specific brand of cheese from a small grocery in my neighbourhood because I like it and I trust the grocery man" (GR, F, Reg). However, other participants (mainly from Spain and the UK) reported prevailing supermarket purchases since they are more convenient and save shopping time. Lastly, because of the relevance of the taste as a driver, many argued to appreciate the possibility of tasting cheese before purchasing to facilitate their choice or to try new products.

##### 3.1.3. Innovations and new strategies to increase consumption

Consumers believe improving communication and promoting a more modern and trendier image of sheep and goat dairy products would

increase their consumption. Because of the limited product knowledge, communicating the health benefits associated with their consumption and relevant information on the product label is deemed to be positive.

Consumers positively accept proposed innovations related to improving feeding quality (e.g., use of new plant varieties, improving forage harvesting), animal welfare (e.g., reducing antibiotics in favour of more natural alternatives) and chefs' involvement to increase product use. Lastly, consumers reject innovations that use genetic manipulations (e.g., in vitro fertilisation, embryo-transfer techniques, developing new breed traits) and the implementation of automatic milk machines.

### 3.2. Means-end chain results

Figs. 1 and 2 illustrate the Hierarchical Value Maps (HVMs) representing the consumer cognitive structures linking the relevant attributes, consequences and values elicited for motivations and barriers to consumption, respectively. The two HVMs were obtained by analysing the data collected in all countries altogether. Each meta-map was analysed and discussed at an aggregate meta-level. Each level of abstraction (i.e., attribute, consequence and value) is identified by the colour of the node in the map (TV = "Terminal Value" in violet; IV = "Instrumental Value" in purple; PC = "Psychological Consequence" in dark green; FC = "Functional Consequence" in light green, AA = "Abstract Attribute" in yellow, and, CA = "Concrete Attribute" in dark orange). The thickness of the lines represents the frequency of associations between each node of the map. In both maps, for each node, the name of the content code, the number of mentions and the percentage of participants who named it are reported.

The links reported in the Implication Matrix were compared with different cut-off levels. The interpretation of the maps was based on: a) the length of each means-end chain (i.e., the number of concepts linked from attributes to values); b) the centrality of the concepts (i.e., the number of links leading to each specific concept); c) the relevance of the link between two concepts (i.e., the number of respondents that

mentioned that link, represented graphically by the thickness of the lines linking the concepts); and d) the specific "chunks of meaning" written by participants when compiling the paper-and-pencil laddering task, before they were coded (Reynolds and Gutman, 1988).

Finally, the validity (representativity) and the readability of the maps were balanced by trying different cut-off levels (constant across categories). The cut-off level determines which relations should be represented in one map and measures the minimum number of respondents mentioning that association among concepts (link). The selection of the appropriate threshold cut-off level was aimed at ensuring a compromise between synthesis and detail (Grunert and Grunert, 1995). The most informative and easy-to-interpret solutions were obtained choosing different cut-off levels: 7 for motivations and 5 for barriers. Each HVM represents at least 40% of the links elicited by all consumers at the chosen cut-offs. Overall, ten attributes (A), eleven consequences (C) and four values (V) were elicited from sheep and goat dairy consumers. For consumers, the centrality indexes (Table 2) indicate that the most central motivation is represented by the attribute "Unique taste" (0.16), followed by "High quality" (0.12) and by the consequences "Tastes good" (0.15) and "Eating healthy" (0.14). Among the values, "Food as enjoyment" is the most important, followed by "Own health" and "Well-being & quality of life". The abstractness index is an indicator of the correct classification of each concept as Attribute, Consequence or Value: the higher the value, the more abstract the concept is (i.e., links arriving vs links departing).

In the first HVM (Fig. 1) the most important and longest chain identifies as the relevant motivation for consumption of sheep and goat dairy products the value "Food as enjoyment", which also leads to "Well-being & quality of life". The other important motivation is identified by the chain of health ("Own health").

Concerning the first chain, the stronger connection between the attribute "Unique taste" and the consequences "Tastes good", which is also the strongest in this map, confirms the importance of the hedonic dimension. Consumers often refer to those dairy products using the

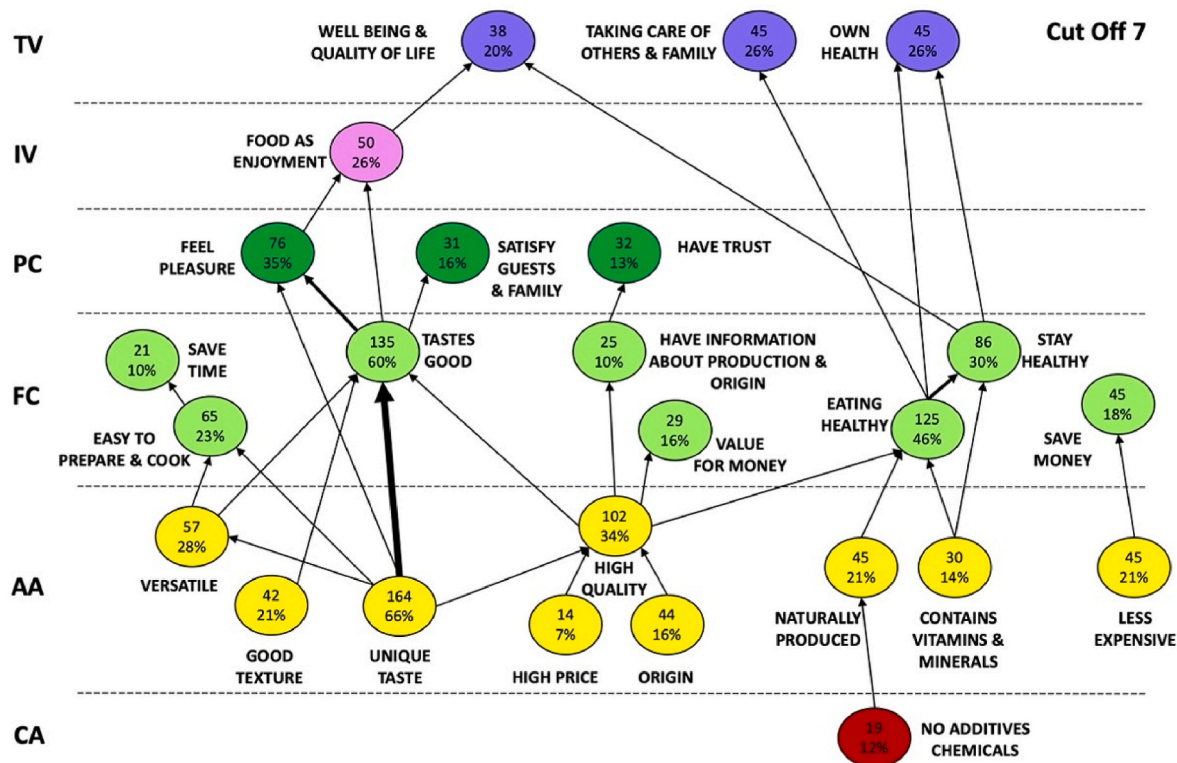


Fig. 1. Hierarchical value map of consumers (TV = "Terminal Value"; IV = "Instrumental Value"; PC = "Psychological Consequence"; FC = "Functional Consequence", AA = "Abstract Attribute"; CA = "Concrete Attribute").

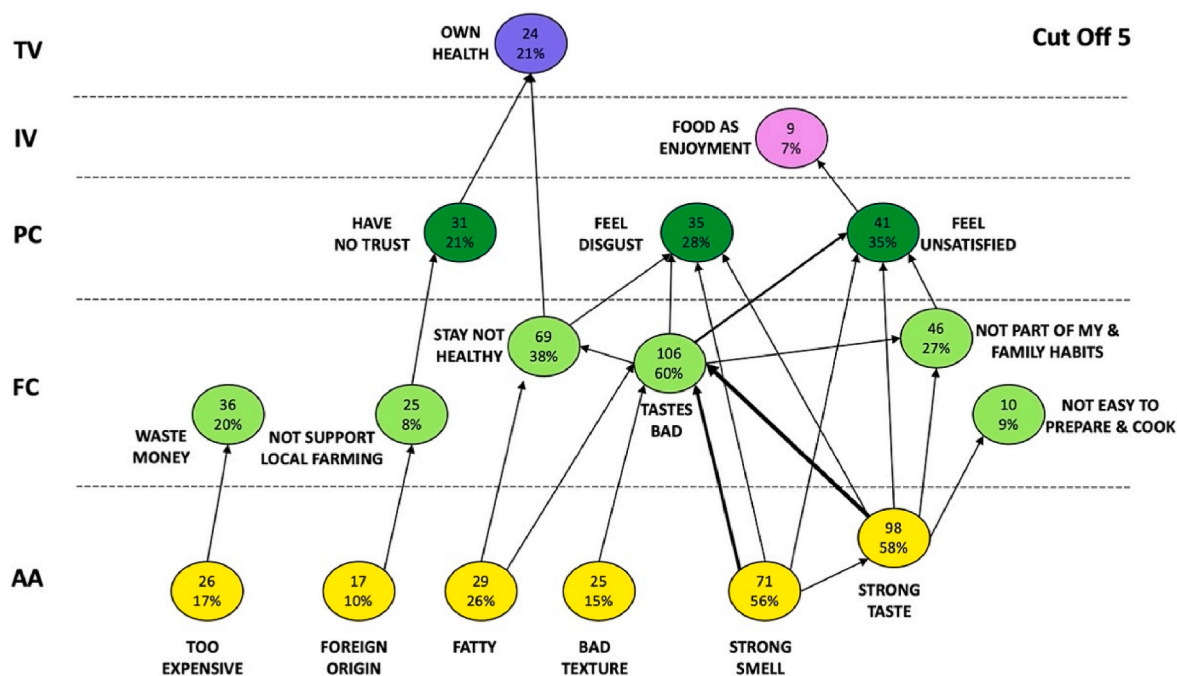


Fig. 2. Hierarchical value map of non-consumers (TV = “Terminal Value”; IV = “Instrumental Value”; PC = “Psychological Consequence”; FC = “Functional Consequence”; AA = “Abstract Attribute”).

Table 2  
Abstractness and centrality indexes for consumers.

Content codes	Abs.	Cent.	Content codes	Abs.	Cent.
NO ADDITIVES CHEMICALS	0.02	0.02	TASTES GOOD	0.60	0.15
LESS EXPENSIVE	0.03	0.04	VALUE FOR MONEY	0.67	0.03
ORIGIN	0.06	0.05	STAY HEALTHY	0.69	0.09
UNIQUE TASTE	0.06	0.16	SAVE TIME	0.71	0.02
HIGH PRICE	0.07	0.01	SAVE MONEY	0.72	0.03
GOOD TEXTURE	0.11	0.04	SATISFY GUESTS & FAMILY	0.81	0.04
CONTAINS VITAMINS & MINERALS	0.15	0.03	FEEL PLEASURE	0.85	0.07
NATURALLY PRODUCED	0.32	0.05	HAVE TRUST	0.88	0.04
HIGH QUALITY	0.32	0.12	FOOD AS ENJOYMENT	0.87	0.07
VERSATILE	0.33	0.05	TAKING CARE OF OTHERS & FAMILY	0.91	0.04
HAVE INFORMATION ABOUT PRODUCTION ORIGIN	0.43	0.03	OWN HEALTH	0.95	0.06
EASY TO PREPARE & COOK	0.53	0.06	WELL BEING & QUALITY OF LIFE	0.98	0.06
EATING HEALTHY	0.54	0.14			

words “very tasty”, “pleasant”, “good”, “different” and “mild”. According to the results, a good taste experience is a key factor for buying and consuming sheep and goat dairy products. Some chunks of meaning are: “Special taste coming from nature” (TR, F, Occ) and “It has a different taste” (UK, F, Reg). Moreover, the map shows that the tasty experience associated by consumers with those products can also evoke positive psychological consequences related to pleasure (“Feel pleasure”) and satisfaction (“Satisfy guests & family”). In the words of respondents: “Feeling pleasure if the taste is satisfied” (IT, M, Reg), “I like to give a special touch to my dishes without being repetitive” (ES, F, Occ) and “I wish to succeed in the dishes I prepare for my guests” (FR, M, Occ). Moreover, special attention to vegetarian consumers is also reported: “I can prepare nice dishes also for my vegetarian friends” (UK, M, Occ).

In the hedonic cue, feelings of enjoyment and well-being are

relevant. Consumers use taste, at different levels of abstraction, to achieve these values (instrumental or terminal); they want to “share” the “tasty” experience and a “pleasant” and “relaxing” moment with their family and their friends.

Other two minor attributes which explain better a good taste experience are “Good texture” and “Versatile” in consumers’ minds, versatility (e.g., favouring many combinations with other ingredients) is strongly related to the easiness of cooking and saving time. One reported: “It can easily be used in a variety of recipes” (GR, M, Reg).

After taste, quality is the other most hierarchically relevant attribute. For consumers, high quality means good taste and eating healthy. Notably, the quality attribute is also linked to the product’s origin and price, both considered quality indicators. Specifically, consumers trust “local” products more. In the words of two participants: “Because I prefer the products of my country and best from my area” (FR, M, Reg) and “I prefer local producers” (IT, F, Reg). Quality cue, which also starts from origin, leads to “Have information about production/origin” and to “Have trust”. To trust the product, consumers need to receive more information about it (e.g., production systems, standards, farming conditions, hygienic controls etc.). They expressed their preference for safer products stating: “It is important to know if the product follows the standards” (FR, F, Occ), “I want to know how animals eat or drink, or how they are raised” (FI, F, Occ), “Labels containing detailed information about origin and production processes” (IT, M, Occ) and “Reliable producers provides necessary hygienic conditions and they control it” (TR, M, Occ). Regarding price, consumers believe that a low price means low quality. For this reason, most consumers declared to be willing to pay a higher price for high-quality and artisanal cheese products, like those labelled with PDO or PGI labels. Also, for most participants sheep and goat dairy products have a reasonable price, one specified “Good balance between price and quality” (UK, F, Occ).

In the quality cue, the consequence “Eating healthy” is confirmed as another driver of the consumption of sheep and goat dairy products. Consumers are conscious that taste is not the unique consumption criterion and that eating healthy is directly associated with their overall health and family care. According to respondents, eating sheep and goat products can increase the sense of healthiness, facilitating digestion and reducing some health diseases; they affirmed: “I find it easier to digest”

(UK, M, Reg), “Healthy diet is important for me” (TR, M, Reg), and “Good for the children’s health” (TR, M, Reg). Eating healthy is also linked to other attributes: “Naturally produced” and “Contains vitamins & minerals”. Because consumers perceive that health is directly related to the production systems, they declare to prefer sheep and goat dairy products rather than cow products because they are “safer”, “more natural”, and “less industrialised”. Consumer elicited chunks of meaning including the following: “I think sheep and goats are bred in a different way than cows” (ES, M, Occ), “Making process is natural” (ES, F, Occ), “Less additives” (TR, F, Occ), or “Use of natural feeds for animals” (TR, F, Occ). The high nutritional content (e.g., high in vitamins, proteins and calcium) is the other recognised motivation for eating and staying healthy.

Non-consumers elicited six attributes, nine consequences and two values. The most central barrier is represented by the abstract attribute “Strong taste” (0.16), followed by “Strong smell” (0.11) and by the functional consequence “Stay not healthy” (0.11). “Own health” is the most important value (Table 3).

According to the map (Fig. 2), “Own health” and “Food as Enjoyment” – at the value level – and “Tastes bad” – at the consequence level – are the most important barriers to the consumption of sheep and goat dairy products.

In relation to the hedonic cue, participants dislike the typical “mutton” taste and feel unsatisfied or disgusted when describing sheep and goat dairy products. They often use the words: “bad”, “strong”, “gamey”, “disgusting”, “unpleasant taste”, “feeling of nausea”. The strong dislike is confirmed by non-consumers who stated: “I find it unpleasant” (ES, M), “Bitter flavour” (FI, M), “Taste of traditional products cause nausea and vomiting” (TR, M). Also, their strong smell, often disliked by children and other family members, is the other hedonic characteristic that negatively influences their consumption.

For non-consumers, potential health risks represent the second most significant barrier. Specifically, non-consumers believe that sheep and goat dairy products are fatty, salty, not easy to digest and have a high cholesterol content. This means that non-consumers believe that those products can cause health problems, some affirmed: “I don’t want to have health problems after eating” (TR, M), “Fat (of those products) is associated to health problems” (ES, M), “I think it’s not good for health” (UK, F). In some cases, the fat negatively influences the perception of taste; one added: “I don’t like the taste of fatty foods” (TR, F). Health aspects are associated with hygienic conditions and low trust; in their ladders some participants stated: “I think that there are not enough controls for the farmers” (IT, F), “The place where the milk is milked is not hygienic” (IT, M), and “Hygiene is important for everyone who cares about health” (TR, M). Interestingly, at the given cut-off level, the means-end chain is not independent, and the attribute “Fatty” is linked to both “Stay not healthy” and “Tastes bad”, while the negative sensory experience is linked, at the consequence level, with the health one. Regarding the health aspects, only two non-consumers indicated the lactose intolerance of friends and relatives as a barrier to purchase.

A minor chain mentions the foreign origin among the barriers. Unlike consumers, some non-consumers (mainly from Finland and the UK)

**Table 3**  
Abstractness and centrality indexes for non-consumers.

Content codes	Abs.	Cent.	Content codes	Abs.	Cent.
FOREIGN ORIGIN	0.00	0.04	TASTES BAD	0.61	0.20
FATTY	0.01	0.07	WASTE MONEY	0.72	0.07
TOO EXPENSIVE	0.03	0.06	NOT EASY TO PREPARE & COOK	0.82	0.02
BAD TEXTURE	0.05	0.03	FEEL UNSATISFIED	0.84	0.09
STRONG SMELL	0.05	0.11	HAVE NO TRUST	0.86	0.08
STRONG TASTE	0.07	0.16	FEEL DISGUST	0.92	0.07
NOT PART OF MY & FAMILY HABITS	0.47	0.10	FOOD AS ENJOYMENT	1.00	0.03
STAY NOT HEALTHY	0.51	0.11	OWN HEALTH	0.91	0.06
NOT SUPPORT LOCAL FARMING	0.58	0.06			

claim that sheep and goat dairy products are mainly imported. For this reason, they do not purchase them to support their local productions. The non-local origin is negatively perceived because they believe that quality controls on imported dairy products are not trustworthy and want to support the local dairy economy. Like the Finnish and UK non-consumers, only one French participant highlighted the foreign origin as an undesirable characteristic limiting the purchase. They prefer local products.

Non-consumers perceive the price as too high for daily consumption compared to cow dairy products. In some cases, the high price is also motivated by the foreign origin of those products: “I think that if the product is domestic, the price would be reasonable” (FI, F) or “Long delivery route increases price” (FI, F).

#### 4. Discussion

Consumers’ motives in food choice have been widely investigated in the last decades. Both intrinsic and extrinsic quality cues are essential elements influencing the perception and the drivers of consumption (Braghieri et al., 2014; Brečić et al., 2017; Grunert, 2002; Mandolesi et al., 2020; Vargas-Bello-Pérez et al., 2022).

The MEC model represents a valid instrument to identify how a particular product can facilitate the achievement of consumers’ desired end-states (Botschen et al., 1999; Gengler et al., 1995; Grunert, 1995; Gutman, 1984; Kitsawad and Guinard, 2014; Lind, 2007; Mandolesi et al., 2020; Pieters et al., 1995; Zanolini and Naspetti, 2002). The study focused on two different groups of consumers: those who regularly and occasionally purchase and consume small ruminants’ dairy products and those who do not consume them for different reasons. In general, both approaches show that non-consumers, given their limited experience and knowledge of sheep and goat dairy products, have simpler and more limited discourses and cognitive structures related to sheep and goat dairy products. Specifically, non-consumers (barriers) HVM was simpler and shorter than the one for consumers HVM, where more attributes, consequences and values were elicited. As expected, the unfamiliarity towards sheep and goat dairy products influenced non-consumers, who found explaining their beliefs and reasons more challenging (Vargas-Bello-Pérez et al., 2022).

The study shows that consumers perceived sheep and goat dairy products as a speciality food. For a long time, the demand for small ruminant dairy products was almost modest compared to cow dairy products and typical of developing and Mediterranean countries, where ecological factors, climate and environment (natural food resources) are key drivers of the small ruminant production. However, the growing demand for healthy and more sustainable diets, together with the increasing interest in connoisseurs, changed this paradigm in favour of food products perceived as more natural and trendier such as sheep and goat dairy products (Pirisi et al., 2007; Ribeiro and Ribeiro, 2010; Ryffel et al., 2008). Also, recent nutritional guidelines highlighted the quality of sheep and goat dairy products which are considered to impact less than cow milk on gastrointestinal diseases and allergies (Park et al., 2007).

In line with a previous study (Guerrero et al., 2009), taste, product origin, production methods, and familiarity are relevant drivers in evaluating traditional food products.

The taste (at the attribute and consequence level) appears in both motivations and barriers. The thicker arrow between “Unique taste” and “Tastes good” for consumption motivations as well as the other thicker arrow between “Strong taste/smell” and “Tastes bad” for non-consumption motivations, underline the importance of this attribute. In both cases, taste is the key attribute linked to abstract concepts, i.e., relevant values such as food as enjoyment and well-being. The “unique taste” of sheep and goat dairy products is the first important motivation for consumers, as reported in previous studies (Miller and Lu, 2019; Ribeiro and Ribeiro, 2010; Ryffel et al., 2008). The characteristic “animalic” flavour is considered a plus by consumers (Ryffel et al., 2008;

Vargas-Bello-Pérez et al., 2022). By contrast, non-consumers associated only negative hedonic perceptions with sheep and goat dairy products, declaring they are “bad” and “disgusting”, or having a “strong” and “gamey” taste and/or odour. As shown in other studies (Ribeiro and Ribeiro, 2010; Ryffel et al., 2008), the gamey and sheepy tastes (and odours) are the main barriers to consumption, evoking nausea and disgust. Consumers often tend to prefer more neutral flavours like cow dairy products. The aversion to the typical strong taste of sheep and goat dairy products results from the standardisation of tastes obtained by modern industrial-scale production (Boyazoglu and Morand-Fehr, 2001). This tendency is increasing among the younger population, whose sheep and goat dairy product consumption is especially low (Vargas-Bello-Pérez et al., 2022).

A vast group of consumers, especially in non-Mediterranean countries, linked sheep and goat dairy products to special occasions (e.g., as a substitute for dessert or as delicatessen at parties) because they are perceived as “high quality” products (Kupiec and Revell, 1998). As in previous literature, the perception of high quality was also linked with the method of production (i.e., “artisanal” and “natural”) and with the “local” origin (Di Gregorio et al., 2023; Vargas-Bello-Pérez et al., 2022).

According to previous studies, most consumers associate sheep and goat dairy products are little price sensitive when foods are perceived to affect health positively (Kupiec and Revell, 2001, 1998; Ribeiro and Ribeiro, 2010; Vargas-Bello-Pérez et al., 2022). On the other hand, non-consumers perceived sheep and goat dairy products as too expensive, similar to a previous study on sheep and goat meat products (Mandolesi et al., 2020). This controversial aspect may indicate that the “right” price is a consumer-subjective feature (Fotopoulos et al., 2003).

According to the literature, familiarity significantly influences the consumption of a food (Guerrero et al., 2009; Hocquette et al., 2013; Lahne et al., 2014). The results showed that low familiarity, cited by both consumers and non-consumers, has two different effects. On the consumer side, low familiarity may limit the increase in purchases. At the same time, unfamiliarity can represent a strong barrier for non-consumers due to the uncertainty about the taste and potential health risks (Xu and Zeng, 2022).

The results showed that food healthiness constitutes a substantial purchase leverage for consumers and non-consumers. Both HVMs report the value of personal health (“Own health”) and of the familiars (“Taking care of others & family”) as relevant non-sensory factors influencing food choices. According to literature (Boyazoglu and Morand-Fehr, 2001; Miller and Lu, 2019; Pandya and Ghodke, 2007; Ryffel et al., 2008), sheep and goat dairy products are considered by consumers as “healthier” than cow dairy products because of their higher nutritional properties in terms of proteins, fatty acids and vitamins. Consumers associated positive health benefits such as high digestibility (Ribeiro and Ribeiro, 2010; Vargas-Bello-Pérez et al., 2022). As in previous studies (Vannoppen et al., 2001; Vargas-Bello-Pérez et al., 2022), the perception of healthiness was also linked with the “more natural” and “traditional” method of production. The map clearly shows the strong relationship between “Eating healthy” which lead to “Stay healthy”, “Well-being & quality of life” and health-related values. Conversely, non-consumers did not associate sheep or goat dairy products with any beneficial health effects because they believe these products are fatty and not easy to digest. The negative perception of non-consumers regarding health aspects contrasts with Vargas-Bello-Pérez et al. (2022), who report that even non-consumers perceive small ruminants’ dairy products as healthy. Our results depend on higher distrust towards small ruminants’ dairy products, especially among non-familiar respondents in low-consumption countries, which is related to perceived poorer quality controls and lower hygienic conditions associated with these productions.

Lastly, the impact of the production of sheep and goat dairy products on animal welfare emerged in the focus group discussion as a factor influencing consumers. Participants associated small ruminants with extensive production systems. In consumer minds, these systems are

preferred to the perceived predominantly intensive cow dairy production systems, considered lower quality, ecologically damaging and harmful to health (Paraskevopoulou et al., 2020). Although animal welfare is not appearing in the HVMs among values, consumers elicited scattered concrete attributes related to animal husbandry conditions (e.g., free range), and feed quality (e.g., without additives, hormones, and chemicals).

## 5. Conclusions

The study shows a lack of widespread information, product knowledge and familiarity with sheep and goat dairy products among European consumers, even where those products are traditional. Therefore, more transparent information e.g., through labelling can significantly increase purchases. However, the results suggest that communicating the product’s quality means more than merely providing information regarding ingredients, origin, and production methods. Overloading consumers with many quality labels, in addition to commercial brands and cheese types, is not a good marketing strategy. The results show that the motivational structure of consumers and non-consumers can be associated with two main clusters: one related to taste and one to health. The effect of information on consumers’ food choices can be amplified by the capacity to transmit relevant values like well-being, health, and care for others and family (Cruz Maceín et al., 2020; Napolitano et al., 2010). Those speciality foods would benefit from a more attractive communication strategy based on both sensory and non-sensory attributes only if they could arouse positive emotions by attaining the consumer value level (Reynolds and Craddock, 1988; Reynolds and Gutman, 1984).

Producers, processors, retailers, and the food service sector should focus on communication strategies that help increase consumers’ product knowledge and make sheep and goat products more familiar by using health, well-being, and care about others as important motivators of product purchase. Consumers’ goal structures help to identify the relevant triggers for emotional influences in goal-directed behaviour, such as food choice (Bagozzi et al., 2000).

The study presents some limitations. First, being a qualitative study, generalizability cannot be granted in statistical terms (i.e., from sample to population). The external validity needs to be viewed in terms of analytical generalisation beyond the immediate study (Krippendorff, 2004; Yin, 2018), that is in terms of general statements or propositions like the ones reported above. Second, the study aimed to generically assess consumer preferences and motivations for sheep and goat dairy products without focusing on specific brands or references. It is likely that in some specific market conditions, some goat and sheep dairy products have higher visibility and market penetration, as in the case of the Greek Feta cheese or the Spanish Manchego. However, many consumers at the European level, even in the specific countries, do not immediately associate those cheese products with small ruminants, as we have verified in our research. Lastly, due to the explorative nature of the study and because income is often considered sensitive information (i.e., participants can be unwilling to provide an answer or give any information about it), we did not collect information about it. However, it is known that selecting foods is more than purchasing and consuming a balanced diet. Foods can be seen as a means of demonstrating a lifestyle, prestige and personality (McKenzie, 1974). Especially concerning speciality foods, like in the case of sheep and goat dairy products, the role of income could be significant.

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## Implications for gastronomy

The findings of this international study carry significant implications for gastronomy. Understanding the nuances of consumer motivations and barriers provides valuable insights that can shape culinary practices, product development, and marketing strategies. Identifying sheep and goat dairy products as speciality foods with a unique taste emphasises their distinctive role in gastronomy. Gastronomes and chefs can leverage this perception to craft innovative and unique culinary experiences that highlight the inherent qualities of these dairy products. The unique taste profile can be explored and incorporated into various culinary creations, enhancing the diversity and sophistication of menus and helping overcome the taste barriers of younger generations. The association of high-quality small ruminant dairy products with special occasions, noted in all countries except Spain, suggests an opportunity for gastronomic establishments to position these products as premium offerings for celebratory events and memorable dining experiences. The dominance of perceived quality, naturalness, and healthiness underscores the importance of these attributes in gastronomic offerings. Gastronomy professionals can focus on sourcing and showcasing dairy products that align with these consumer preferences. Furthermore, regarding value for money, gastronomic establishments may need to communicate the value proposition of these products, emphasising their premium quality and health benefits to justify the pricing. This can be achieved through educational initiatives, menu descriptions, and marketing materials that emphasise the intrinsic value of these dairy items.

## CRediT authorship contribution statement

**Serena Mandolesi:** Data curation, Investigation, Software, Visualization, Writing – original draft. **Simona Naspetti:** Conceptualization, Methodology, Supervision, Writing – review & editing. **Georgios Arsenos:** Funding acquisition, Validation. **Emmanuelle Caramelle-Holtz:** Data curation, Investigation, Validation. **Terhi Latvala:** Data curation, Investigation, Validation. **Daniel Martin-Collado:** Data curation, Investigation, Validation. **Stefano Orsini:** Data curation, Investigation, Validation. **Emel Ozturk:** Data curation, Investigation, Validation. **Raffaele Zanolli:** Conceptualization, Funding acquisition, Methodology, Supervision, Writing – review & editing.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Data availability

Data will be made available on request.

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## References

- Almli, V.L., Næs, T., Enderli, G., Sulmont-Rossé, C., Issanchou, S., Hersleth, M., 2011. Consumers' acceptance of innovations in traditional cheese. A comparative study in France and Norway. *Appetite* 57, 110–120. <https://doi.org/10.1016/j.appet.2011.04.009>.
- Bagozzi, R.P., Baumgartner, H., Pieters, R.G.M., Zeelenberg, M., 2000. The role of emotions in goal-directed behavior. In: *The Why of Consumption*. Routledge, London and New York, pp. 36–58. <https://doi.org/10.4324/9780203380338>.
- Bimbo, F., Bonanno, A., Nocella, G., Viscecchia, R., Nardone, G., De Devitiis, B., Carlucci, D., 2017. Consumers' acceptance and preferences for nutrition-modified and functional dairy products: a systematic review. *Appetite* 113, 141–154. <https://doi.org/10.1016/j.appet.2017.02.031>.
- Botschen, G., Thelen, E.M., Pieters, R., 1999. Using means-end structures for benefit segmentation. *Eur. J. Market.* 33, 38–58. [10.1108/EUM000000004491](https://doi.org/10.1108/EUM000000004491).
- Boyazoglu, J., Morand-Fehr, P., 2001. Mediterranean dairy sheep and goat products and their quality: a critical review. *Small Rumin. Res.* 40, 1–11. [https://doi.org/10.1016/S0921-4488\(00\)00203-0](https://doi.org/10.1016/S0921-4488(00)00203-0).
- Braghieri, A., Girolami, A., Riviezzzi, A.M., Piazzolla, N., Napolitano, F., 2014. Liking of traditional cheese and consumer willingness to pay. *Ital. J. Anim. Sci.* 13, 155–162. <https://doi.org/10.4081/ijas.2014.3029>.
- Brečić, R., Mesić, Z., Cerjak, M., 2017. Importance of intrinsic and extrinsic quality food characteristics by different consumer segments. *Br. Food J.* 119, 845–862. <https://doi.org/10.1108/BFJ-06-2016-0284>.
- Cruz Maceñ, J.L., Iriando DeHond, M., Miguel, E., 2020. Cheese consumption culture in Central Spain (Madrid Region): drivers and consumer profile. *Br. Food J.* 122, 561–573. <https://doi.org/10.1108/BFJ-08-2019-0578>.
- De Devitiis, B., Bimbo, F., Viscecchia, R., Nardone, G., Seccia, A., Monacis, L., Albenzio, M., Santillo, A., 2023. Consumer acceptance for sheep milk-based yogurt - evidence from a large sample of Italians consumers. *J. Dairy Sci.* <https://doi.org/10.3168/jds.2023-23403>.
- Di Gregorio, D., Bognanno, M., Laganà, V.R., Nicolosi, A., 2023. Local proximity cheeses: choices that guiding consumers and orienting producers - case studies. *Sustainability* 15. <https://doi.org/10.3390/su15010740>.
- Durmuş, M., Agossou, D.J., Koluman, N., 2019. Sustainability of small ruminant production in Mediterranean region. *J. Environ. Sci. Eng. B* 8, 241–248. <https://doi.org/10.17265/2162-5263/2019.06.005>.
- FAO, 2020. FAOSTAT [WWW Document]. URL. <http://www.fao.org/faostat>. accessed 5.20.20.
- Fotopoulos, C., Krystallis, A., Ness, M., 2003. Wine produced by organic grapes in Greece: using means - end chains analysis to reveal organic buyers' purchasing motives in comparison to the non-buyers. *Food Qual. Prefer.* [https://doi.org/10.1016/S0950-3293\(02\)00130-1](https://doi.org/10.1016/S0950-3293(02)00130-1).
- Gengler, C.E., Klenosky, D.B., Mulvey, M.S., 1995. Improving the graphic representation of means-end results. *Int. J. Res. Market.* 12, 245–256. [https://doi.org/10.1016/0167-8116\(95\)00024-V](https://doi.org/10.1016/0167-8116(95)00024-V).
- Grunert, K.G., 2002. Current issues in the understanding of consumer food choice. *Trends Food Sci. Technol.* 13, 275–285. [https://doi.org/10.1016/S0924-2244\(02\)00137-1](https://doi.org/10.1016/S0924-2244(02)00137-1).
- Grunert, K.G., 1995. Food quality: a means-end perspective. *Food Qual. Prefer.* 6, 171–176. [https://doi.org/10.1016/0950-3293\(95\)00011-W](https://doi.org/10.1016/0950-3293(95)00011-W).
- Grunert, K.G., Grunert, S.C., 1995. Measuring subjective meaning structures by the laddering method: theoretical considerations and methodological problems. *Int. J. Res. Market.* 12, 209–225. [https://doi.org/10.1016/0167-8116\(95\)00022-T](https://doi.org/10.1016/0167-8116(95)00022-T).
- Guerrero, L., Guàrdia, M.D., Xicola, J., Verbeke, W., Vanhonacker, F., Zakowska-Biemans, S., Sajdakowska, M., Sulmont-Rossé, C., Issanchou, S., Contel, M., Scalded, M.L., Granli, B.S., Hersleth, M., 2009. Consumer-driven definition of traditional food products and innovation in traditional foods. A qualitative cross-cultural study. *Appetite* 52, 345–354. <https://doi.org/10.1016/j.appet.2008.11.008>.
- Güney, O.I., 2019. Consumer attitudes towards goat milk and goat milk products: a pilot survey in South East of Turkey. *Turkish Journal of Agriculture - Food Science and Technology* 7, 314–319. <https://doi.org/10.24925/turjaf.v7i2.314-319.2292>.
- Gutman, J., 1984. Analyzing consumer orientations toward beverages through means-end chain analysis. *Psychol. Market.* 1 (3/4), 23–43.
- Hocquette, J.F., Jacquet, A., Giraud, G., Legrand, I., Sans, P., Mainsant, P., Verbeke, W., 2013. Quality of food products and consumer attitudes in France. In: Klopčič, M., Kuipers, A., Hocquette, J.F. (Eds.), *Consumer Attitudes to Food Quality Products*, EAAP – European Federation of Animal Science, vol. 133. Wageningen Academic Publishers, Wageningen, pp. 67–82. <https://doi.org/10.3920/978-90-8686-762-2.5>.
- Huffman, C., Rameshwar, S., Mick, D.G., 2000. *Consumer Goal Structures and Goal-Determination Processes: an Integrative Framework, the Why of Consumption - Contemporary Perspectives on Consumer Motives, Goals, and Desires*. Routledge, London and New York.
- Kitsawad, K., Guinard, J.X., 2014. Combining means-end chain analysis and the portrait value questionnaire to research the influence of personal values on food choice. *Food Qual. Prefer.* 35, 48–58. <https://doi.org/10.1016/j.foodqual.2014.01.003>.
- Krippendorff, K., 2004. *Content Analysis: an Introduction to its Methodology*, second ed. Sage, Thousand Oaks.
- Kupiec, B., Revell, B., 2001. Measuring consumer quality judgements. *Br. Food J.* 103, 7–22. <https://doi.org/10.1108/00070700110382911>.
- Kupiec, B., Revell, B., 1998. Speciality and artisanal cheeses today: the product and the consumer. *Br. Food J.* 100, 236–243. <https://doi.org/10.1108/00070709810221454>.
- Lahne, J., Trubek, A.B., Pelchat, M.L., 2014. Consumer sensory perception of cheese depends on context: a study using comment analysis and linear mixed models. *Food Qual. Prefer.* 32, 184–197. <https://doi.org/10.1016/j.foodqual.2013.10.007>.
- Leppard, P., Russell, C.G., Cox, D.N., 2004. Improving means-end-chain studies by using a ranking method to construct hierarchical value maps. *Food Qual. Prefer.* 15, 489–497. <https://doi.org/10.1016/j.foodqual.2003.09.001>.
- Lind, L.W., 2007. Consumer involvement and perceived differentiation of different kinds of pork - a means-end chain analysis. *Food Qual. Prefer.* 18, 690–700. <https://doi.org/10.1016/j.foodqual.2006.10.004>.
- Mandolesi, S., Naspetti, S., Arsenos, G., Caramelle-Holtz, E., Latvala, T., Martin-Collado, D., Orsini, S., Ozturk, E., Zanolli, R., 2020. Motivations and barriers for sheep and goat meat consumption in Europe: a means-end chain study. *Animals* 10, 1–16. <https://doi.org/10.3390/ANI10061105>.



- McKenzie, J., 1974. The impact of economic and social status on food choice. Symposium on 'Social and Economic Factors in Human Nutrition' 33, 67–73. <https://doi.org/10.1079/PNS19740012>.
- McQuarrie, E.F., Krueger, R.A., 1989. Focus groups: a practical guide for applied research. *J. Market. Res.* 26, 371–372. <https://doi.org/10.2307/3172912>.
- Miller, B.A., Lu, C.D., 2019. Current status of global dairy goat production: an overview. *Asian-Australas. J. Anim. Sci.* 32, 1219–1232. <https://doi.org/10.5713/ajas.19.0253>.
- Nacef, M., Lelièvre-Desmas, M., Symoneaux, R., Jombart, L., Flahaut, C., Chollet, S., 2019. Consumers' expectation and liking for cheese: can familiarity effects resulting from regional differences be highlighted within a country? *Food Qual. Prefer.* 72, 188–197. <https://doi.org/10.1016/j.foodqual.2018.10.004>.
- Napolitano, F., Braghieri, A., Piasentier, E., Favotto, S., Naspetti, S., Zanolli, R., 2010. Effect of information about organic production on beef liking and consumer willingness to pay. *Food Qual. Prefer.* 21, 207–212. <https://doi.org/10.1016/j.foodqual.2009.08.007>.
- Pandya, A.J., Ghodke, K.M., 2007. Goat and sheep milk products other than cheeses and yoghurt. *Small Rumin. Res.* 68, 193–206. <https://doi.org/10.1016/j.smallrumres.2006.09.007>.
- Paraskevopoulou, C., Theodoridis, A., Johnson, M., Ragkos, A., Arguile, L., Smith, L., Vlachos, D., Arsenos, G., 2020. Sustainability assessment of goat and sheep farms: a comparison between European countries. *Sustainability* 12, 1–23. <https://doi.org/10.3390/SU12083099>.
- Park, Y.W., Juárez, M., Ramos, M., Haenlein, G.F.W., 2007. Physico-chemical characteristics of goat and sheep milk. *Small Rumin. Res.* 68, 88–113. <https://doi.org/10.1016/j.smallrumres.2006.09.013>.
- Pieters, R., Baumgartner, H., Alien, D., 1995. A means-end chain approach to consumers' goal structures. *Int. J. Res. Market.* 12, 227–244. [https://doi.org/10.1016/0167-8116\(95\)00023-U](https://doi.org/10.1016/0167-8116(95)00023-U).
- Pirisi, A., Lauret, A., Dubeuf, J.P., 2007. Basic and incentive payments for goat and sheep milk in relation to quality. *Small Rumin. Res.* 68, 167–178. <https://doi.org/10.1016/j.smallrumres.2006.09.009>.
- Pulina, G., Milán, M.J., Lavín, M.P., Theodoridis, A., Morin, E., Capote, J., Thomas, D.L., Francesconi, A.H.D., Caja, G., 2018. Invited review: current production trends, farm structures, and economics of the dairy sheep and goat sectors. *J. Dairy Sci.* 101, 6715–6729. <https://doi.org/10.3168/jds.2017-14015>.
- Reynolds, T.J., Craddock, A.B., 1988. The application of the MECCAS model to the development and assessment of advertising strategy: a case study. *J. Advert. Res.* 28, 43–54.
- Reynolds, T.J., Gutman, J., 1988. Laddering theory, method, analysis, and interpretation. *J. Advert. Res.* 28, 11–31.
- Reynolds, T.J., Gutman, J., 1984. Advertising is image management. *J. Advert. Res.* 24, 27–37.
- Ribeiro, A.C., Ribeiro, S.D.A., 2010. Specialty products made from goat milk. *Small Rumin. Res.* 89, 225–233. <https://doi.org/10.1016/j.smallrumres.2009.12.048>.
- Rossi, R., 2017. The Sheep and Goat Sector in the EU - Main Features, Challenges and Prospects. EPRS European Parliamentary Research Service.
- Ryffel, S., Piccinali, P., Bütikofer, U., 2008. Sensory descriptive analysis and consumer acceptability of selected Swiss goat and sheep cheeses. *Small Rumin. Res.* 79, 80–86. <https://doi.org/10.1016/j.smallrumres.2008.07.006>.
- Sgroi, F., Modica, F., 2022. Localized agri-food systems: the case of Pecorino Siciliano PDO a food product of the tradition of Mediterranean gastronomy. *Int. J. Gastron. Food Sci.* 27, 100471. <https://doi.org/10.1016/j.ijgfs.2022.100471>.
- Vannoppen, J., Verbeke, W., van Huylbroeck, G., 2001. Motivational structures toward purchasing labeled beef and cheese in Belgium. *J. Int. Food & Agribus. Mark.* 12, 1–29. [https://doi.org/10.1300/J047v12n02\\_01](https://doi.org/10.1300/J047v12n02_01).
- Vargas-Bello-Pérez, E., Tajonar, K., Foggi, G., Mele, M., Simitzis, P., Mavrommatis, A., Tsiplakou, E., Habib, M.R., Gonzalez-Ronquillo, M., Toro-Mujica, P., 2022. Consumer attitudes toward dairy products from sheep and goats: a cross-continental perspective. *J. Dairy Sci.* 105, 8718–8733. <https://doi.org/10.3168/jds.2022-21894>.
- Xu, Y., Zeng, G., 2022. Not eating is a loss: how familiarity influences local food consumption. *Tourism Manag.* 90, 104479. <https://doi.org/10.1016/j.tourman.2021.104479>.
- Yin, R.K., 2018. *Case Study Research: Design and Methods, fifth ed.* SAGE Publications, Thousand Oaks, CA.
- Zanolli, R., Naspetti, S., 2002. Consumer motivations in the purchase of organic food: a means-end approach. *Br. Food J.* <https://doi.org/10.1108/00070700210425930>.